

Genetics and Probability Lab

Few concepts have had greater effect on the science of genetics than the laws of probability.

Probability refers to the chance of something happening. Under normal conditions probability calculations can give us good ideas of what to expect from different genetic combinations. A thorough understanding of probability was instrumental in leading Gregor Mendel to his basic conclusions about genetics, and these same laws of probability play an essential role in genetics today.

Question:

Hypothesis:

Procedure:

1. Your group will flip two coins and record the results.
2. Draw the chart in your notebook in the data section

Two Heads	One Head and One Tail	Two Tails

3. Now actually flip the two coins 100 times and record the results on the table. Each person will need to record the total in his or her notebook.
4. Add your data to the board.
5. Record the data in your no
6. Record the total for the class in your notebook in the data section

Data:

Two Heads	One Head and One Tail	Two Tails

Group data: 2 heads _____ 1 head and 1 tail _____ 2 tails _____

Class data: 2 heads _____ 1 head and 1 tail _____ 2 tails _____

Data Analysis:

1. What percentage of toss for each possibility for both your data and class data.

Group data: 2 heads _____% 1 head and 1 tail _____% 2 tails _____%

Class data: 2 heads _____% 1 head and 1 tail _____% 2 tails _____%

2. How do the results compare to the expected outcome? Do you have an explanation for the differences or similarities?
3. Does the technique used to flip the coin impact the outcome? Why or why not?

If the coin were to represent the parent plant each side of the coin represents a factor (trait). Let's say that Heads represents a tall allele (T) and Tails represents a short allele (t).

4. What is genotype for each of the parent plants?
5. What type of plant is represented by 2 heads, a tall or a short plant?
6. What type of plant is represented by 2 tails, a tall or a short plant?
7. What type of plant is represented by 1 head and 1 tail, a tall or a short plant?
8. How many tall plants did your group produce from 200 coin tosses?
9. How many short plants did your group produce from 200 coin tosses?
10. What is the ratio of tall to short plants from your group?
11. What is the ratio of tall to short plants from your class?